

5th Grade Science

Curriculum Guide

Tennessee's K-12 science standards are intended to guide the development and delivery of educational experience that prepare all students for the challenges of the 21st Century. You may access these documents using the *Best for All Central* website:
<https://bestforall.tnedu.gov/lessons-and-learning-item?content-id=9109>

1 st Quarter					
Standard(s)	Learning Objective(s)	CCC/SEP	McGraw Hill Alignment	Assessments	Pacing
Module: Matter Lesson 1: Physical States					
5.PS1.1, 5.ETS2.1	Students will compare and contrast matter based on physical state.	CCC: - Structure and Function SEP: - Analyzing and Interpreting Data - Developing and Using Models	Day 1: - Module Pretest: Matter (digital) - Encounter the Phenomenon: What's the matter at the state fair? (p.3) Day 2: - Page Keeley: Where did the sugar go? (p.5) Day 3: - Encounter the Phenomenon: Fizzy Physical States (p.7) - Fizzy Physical States Video (digital) Day 4: - Inquiry Activity: Phase Changes (p.8-9) Day 5: - Read About: Matter (digital) Day 6: - States of Matter (p.10) - Changes of State (p.11) - State Fair (p. 12)	Lesson Check: Physical States (digital)	3 weeks

			Day 7: - Read About: Physical Properties (digital) Day 8: - Investigator: Slower Melting Ice Cream (digital) Day 9: - Lesson 1 Review (p.14-16) Day 10: - Lesson Check: Physical States (digital)		
Module: Matter Lesson 2: Properties of Mixtures					
5.PS1.3	Students can demonstrate and explain that some mixtures maintain the physical properties of their substances.	CCC: - Stability and Change SEP: - Planning and Carrying Out Investigations	Day 1: - Page Keeley: What will happen to the properties? (p.17) Day 2: - Encounter the Phenomenon: What happens to the properties of substances when they are mixed together? (p.19) - Hello to Mixtures Video (digital) Day 3: - Math Replay: Describe Attributes of Objects Video (digital) - Inquiry Activity: All Mixed Up (p.20-23) Day 4: - Physical Properties (p. 24-25) - Properties of Mixtures Video (digital) Day 5: - Separating Mixtures (p.26-27) Day 6: - Meet a Cosmetologist (p. 28-29) - Meet a Cosmetologist Video (digital) Day 7: - Lesson 2 Review (p. 30-32) Day 8: - Lesson Check: Properties of Mixtures (digital)	Lesson Check: Properties of Mixtures (digital)	1.5 weeks

Module: Matter					
Lesson 3: Properties of Solutions					
5.PS1.2, 5.PS1.3, 5.ETS2.1	Students can compare the properties of substances before and after they combine into a solution.	CCC: - Energy and Matter - Stability and Change - Structure and Function SEP: - Analyzing and Interpreting Data - Planning and Carrying out Investigations - Developing and Using Models	Day 1: - Page Keeley: What happened to the sugar? (p. 33) Day 2: - Encounter the Phenomenon: How does matter in a solution change? (p. 35) - A Sour Solution (digital) Day 3: - Inquiry Activity: Salty Water (p. 36-39) Day 4: - Solutions (p. 40-41) - A Slimy Solution (p. 42-43) Day 5: - Chemical Changes (p. 44) - STEM Connection: Wildland Firefighter (p. 45) Day 6: - Lesson 3 Review (p. 46-48) Day 7: - Lesson Check: Properties of Solutions (digital)	Lesson Check: Properties of Solutions (digital)	1.5 weeks
Module: Matter					
Review and Test					
5.PS1.1, 5.PS1.2, 5.PS1.3, 5.ETS1.1, 5.ETS2.1	Students can demonstrate their knowledge of physical states, properties of mixtures, and properties of solutions.	CCC: - Structure and Function - Energy and Matter - Stability and Change - Pattern SEP: - Analyzing and Interpreting Data	Day 1: - STEM Module Project- Launch Project (digital) Day 2: - STEM Module Project- Review Lessons 1-3 (p. 49-51) - STEM Module Project- Research the Problem and Keep Planning (p. 51) Day 3: - STEM Module Project Engineering Challenge- Design the Perfect Pancake (p. 52- 54)	- STEM Module Project- rubric (digital) - G5 TN Science Module Test: Matter (digital)	1 week

		• Planning and Carrying Out Investigations • Obtaining, Evaluating, Communicating Information • Developing and Using Models	Day 4: • Module Wrap-up (p. 55) Day 5: • G5 TN Science Module Test: Matter (digital)		
Module: Force and Motion Lesson 1: Balanced and Unbalanced Forces					
5. PS2.1, 5.PS2.2	Students can investigate and explain how balanced and unbalanced forces acting on an object cause patterns of motion and transfer of energy.	CCC: • Patterns SEP: • Planning and Carrying Out Investigations • Developing and Using Models	Day 1: • Module Pretest: Force and Motion (digital) • Encounter the Phenomenon: What do forces have to do with a playground? (p. 57 and digital video) Day 2: • Page Keeley: Knocking Down the Pins (p. 59) Day 3: • Encounter the Phenomenon: How do forces transfer energy and cause patterns of motion? (p. 61) • It's All Downhill from Here Video (digital) Day 4: • Inquiry Activity: Toy Car Crashes (p. 62-65) Day 5: • Read About: Balanced and Unbalanced Forces (digital) • Balanced and Unbalanced Forces (p. 66-67) Day 6: • Read About: Measuring Forces (digital) • Measuring Forces (p. 68) Day 7: • Read About: Energy Transfers (digital) • Energy Transfers (p. 69) Day 8:	Lesson Check: Balanced and Unbalanced Forces (digital)	2 weeks

			- Meet and Architect and Hockey Player (p. 70-71) Day 9: - Lesson 1 Review (p. 72-74) Day 10: - Lesson Check: Balanced and Unbalanced Forces (digital)		
2nd Quarter					
Standard(s)	Learning Objective(s)	CCC/SEP	McGraw Hill Alignment	Assessments	Pacing
Module: Force and Motion Lesson 2: Patterns of Motion					
5.PS2.4	Students can explain how forces can create patterns.	CCC: - Cause and Effect SEP: - Engaging in Argument from Evidence	Day 1: - Page Keeley: Testing How Forces Affect Motion (p. 75) Day 2: - Encounter the Phenomenon: How can you test the effect a force has on an object in a system? (p. 77) - Ready, Set, Release Video (digital) Day 3: - Inquiry Activity: Balloon Rocket (p. 78-80) Day 4: - Make Your Claim: How do forces affect the motion of an object? (p. 81 and digital) Day 5: - Investigating Forces (p. 82-83) Day 6: - Testing Variables (p. 84-85) - Interactive Infographic: Three Investigations (digital) Day 7: - Accelerating Understanding: The Dynamic Forces at Play in Race Car Driving - Stem Connection (digital) Day 8:	Lesson Check: Patterns of Motion (digital)	2 weeks

			- Investigator Article: Designing Steel Giants (digital) Day 9: - Lesson 2 Review (p. 88-89) Day 10: - Lesson Check: Patterns of Motion (digital)		
Module: Force and Motion Review and Test					
5.PS2.1, 5.PS2.2, 5.PS2.4	Students can demonstrate their knowledge of balanced forces, unbalanced forces and patterns of motion.	CCC: - Forces, Fields, and Motion - Pattern - Cause and Effect - Structure and Function - Scale, Proportion, and Quantity SEP: - Planning and Carrying Out Controlled Investigations - Developing and Using Models - Engaging in Argument from Evidence - Developing and Using Models - Obtaining, Evaluating, and Communicating Information	Day 1: - Plan STEM Module Project: Design a Roller Coaster (digital) - STEM Module Project- Launch STEM Module Project (digital) Day 2: - STEM Module Project- Review Lessons 1-2 (p. 91-92) - STEM Module Project- Research the Problem and Sketch Your Model (p. 93) Day 3: - STEM Module Project Engineering Challenge- Design a Roller Coaster (p. 94-96) Day 4: - Module Wrap-up (p. 97) Day 5: - G5 TN Science Module Test: Force and Motion (digital)	STEM Module Project- Rubric (digital); G5 TN Science Module Test: Force and Motion (digital)	1 week
Module: Behavior and Traits Lesson 1: Instinctual Traits and Learned Behaviors					

5.LS1.1	Students can explain how instinctual and learned behavioral traits increase chances of survival.	CCC: • Pattern SEP: • Developing and Using Models	Day 1: • Module Pretest: Behavior and Traits (digital) • Encounter the Phenomenon: How do sea turtle hatchlings know where to go, and how do they get there? (p. 99 and digital) • Unit Launch Video: How can plants survive here? (digital) Day 2: • Page Keeley: Surviving the Wild (p. 101) • Encounter the Phenomenon: How do behavioral traits increase an organism's change of survival? (p. 103) • Surviving Spoonbill Video (digital) Day 3: • Inquiry Activity: Instinctual Traits and Learned Behaviors (p. 104-107) • How Animals Act (p108-109) Day 4: • Learned Versus Instinct (p. 110-111) • Interactive Infographic: Animal Behaviors (digital) • Sea Turtles Rescue (p. 112-113) • Sea Turtles Video (digital) • Lesson 1 Review (p. 114-116) Day 5: • Lesson Check: Instinctual Traits and Learned Behaviors (digital)	Lesson Check: Instinctual Traits and Learned Behaviors (digital)	1 week
Module: Behavior and Traits Lesson 2: Inheritance and Variation of Traits					
5.LS3.1, 5.LS3.2	Students can differentiate between inherited and acquired physical traits of organisms.	CCC: • Pattern • Cause and Effect SEP: • Engaging in Argument from Evidence	Day 1: • Page Keeley: Pea Plants (p. 117) Day 2: • Encounter the Phenomenon: Why are organisms sometimes alike and different from their parents? (p. 119) • They Got It from Whom? Video (digital) Day 3:	Lesson Check: Inheritance and Variation of Traits (digital)	2 weeks

			• Inquiry Activity: Inheritance and Variation of Traits (p. 120-22) Day 4: • Make Your Claim: How do animal features help the survive? (p. 123 and digital) Day 5: • Investigator Article: Designs form Nature (digital) Day 6: • Alike and Different (p. 124-125) Day 7: • Note booking Foldable: Inheritance and Variation of Traits (digital) Day 8: • Traits of Organisms (p. 126-127) • Interactive Infographic: Traits of Organisms (digital) Day 9: • Lesson 2 Review (p. 128-130) Day 10: • Lesson Check: Inheritance and Variation of Traits (digital)		
Module: Behavior and Traits Lesson 3: Biological Change					
5.LS4.1	Students can compare and contrast traits that allow living things to survive and reproduce.	CCC: • Structure and Function SEP: • Engaging in Argument from Evidence	Day 1: • Page Keeley: Adaptations for Survival (p. 131) • Encounter the Phenomenon: How does the environment influence the development of plants and animals? (p. 133) • Changing Colors Video (digital) Day 2: • Inquiry Activity: Select Your Beak (p. 134-137) Day 3: • Favorable Traits (p. 138-139) • Animal Appearances (p. 140-141)	Lesson Check: Biological Change (digital)	1 week

			- STEM Connections: Entomologist (digital) Day 4: - Lesson 3 Review (p. 142-144) Day 5: - Lesson Check: Biological Change (digital)		
Module: Behavior and Traits					
Review and Test					
5.LS1.1, 5.LS3.1, 5.LS3.2, 5.LS4.1	Students can demonstrate their knowledge of instinctual traits and learned behaviors, inheritance and variation of traits, and biological change.	CCC: - Pattern - Cause and Effect - Structure and Function SEP: - Developing and Using Models - Engaging in Argument from Evidence - Obtaining, Evaluating, and Communicating Information	Day 1: - Plan STEM Module Project: Design an Animal's Adaptations (digital) - STEM Module Project- Launch STEM Module Project (digital) Day 2: - STEM Module Project- Review Lessons 1-3 (p. 145-146) - STEM Module Project- Build Your Model (p. 147) Day 3: - STEM Module Project Engineering Challenge- Communicate Your Results (p. 148) Day 4: - Module Wrap-up (p. 149) Day 5: - G5 TN Science Module Test: Behaviors and Traits (digital)	STEM Module Project- Rubric (digital); G5 TN Science Module Test: Behaviors and Traits (digital)	1 week
3rd Quarter					
Standard(s)	Learning Objective(s)	CCC/SEP	McGraw Hill Alignment	Assessments	Pacing
Module: Earth's Patterns and Movement					
Lesson 1: The Role of Gravity					
5.PS2.3, 5.ESS1.4	Students can support an argument that gravity causes objects	CCC: Patterns SEP:	Day 1: Module Pretest: Earth's Patterns and Movement (digital)	Lesson Check: The Role of Gravity	2 weeks

	to be pulled down toward the center of Earth.	- Analyzing and Interpreting Data - Engaging in Argument from Evidence	- Encounter the Phenomenon: Why does the shape of the Moon appear to change throughout the month? (p.3) - Page Keeley: Earth's Gravity (p.5) Day 2: - Encounter the Phenomenon: What caused this crater to form? (p.7) - Barringer Crater Video (digital) - Barringer Crater Photos (digital) Day 3: - Inquiry Activity: Crater Model (p.8-10) Day 4: - Make Your Claim: What force causes objects to fall to Earth's surface? (p.11) - Gravity's Direction Video (digital) Day 5: - The Pull of Earth's Gravity (p. 12-13) - Tides Video (digital) - Meteors and Meteorites (p.14-15) Day 6: - The Pull of Earth's Gravity (p. 12-13) - Meteors and Meteorites (p.14-15) Day 7: - Inquiry Activity: Falling Water (p.16-18) - How Could You Become a Physics Teacher? (p.19) Day 8: - Investigator: Gravitational Waves (digital) Day 9: - Lesson 1 Review (p.20-22) Day 10: - Lesson Check: Earth's Motion (digital)		
Module: Earth's Patterns and Movement Lesson 2: Earth's Motion					
5.ESS1.3, 5.ESS1.4, 5.ESS1.5	Students can analyze and interpret data to model the movement	CCC: Patterns SEP:	Day 1: Page Keeley: Phases of the Moon (p.23) Day 2:	Lesson Check: Earth's Motion	2 weeks

	of Earth in relationship to other objects in space.	Analyzing and Interpreting Data	- Encounter the Phenomenon: How can we use the Sun to tell time? (p.25) - Encounter the Phenomenon: Sundial (digital) Day 3: - Inquiry Activity: Shadow Measurements (p.26-27) Day 4: - Earth in Space (p.28-29) - Inquiry Activity: Earth's Movements (p.30) Day 5: - Seasons (p.31-32) - Go Further: Daylight and Seasons (digital) - Simulation: Earth's Movement (digital) Day 6: - Video: Earth and the Sun (digital) - Earth's Moon (p.34-35) Day 7: - Inquiry Activity: Three Cities (p.36-38) Day 8: - STEM Connection: A Day in the Life of a Field Engineer (p.39) Day 9: - Lesson 2 Review (p.40-42) Day 10: - Lesson Check: Earth's Motion (digital)		
Module: Earth's Patterns and Movement Review and Test					
5.PS2.3, 5.ESS1.3, 5.ESS1.4, 5.ESS1.5	Students can demonstrate their knowledge of gravity and the movement of Earth in relationship to other objects in space.	CCC: SEP:	Day 1: - Review Lesson 1 (p.5-22) - STEM Module Project: Design a Planetarium Model (p.43) Day 2: - Review Lesson 2 (p.24-44) - STEM Module Project: Design a Planetarium Model (p.44-45) Day 3:	Module Test: Earth's Patterns and Movement (digital)	1 week

			- STEM Module Project: Design a Planetarium Model (p.46) Day 4: - Module Wrap-up (p. 47) Day 5: - Module Test: Earth's Patterns and Movement (digital)		
Module: Earth and Space Lesson 1: The Milky Way Galaxy					
5.ESS1.2	Students can research the Milky Way galaxy and compare it to other galaxies in the universe.	CCC: - Patterns - Scale, Proportion, and Quantity SEP: - Analyzing and Interpreting Data - Engaging in Argument from Evidence	Day 1: - Module Pretest: Earth and Space (digital) - Page Keeley: The Milky Way Galaxy (p.51) Day 2: - Encounter the Phenomenon: What is the Milky Way galaxy made of? (p.53) Day 3: - Inquiry Activity: Research Galaxies (p.54-55) Day 4: - Galaxies (p.56) - Types of Galaxies (p.57) Day 5: - Read About: Our Galaxy (digital) - Video: Our Place in the Milky Way (digital) Day 6: - Read About: The Solar System (digital) Day 7: - Investigator: To Pluto and Beyond! (digital) Day 8: - STEM Connection: Astronomer (digital) Day 9: - Lesson 1 Review (p.60-62) Day 10: - Lesson Check: The Milky Way Galaxy (digital)	Lesson Check: The Milky Way Galaxy (digital)	2 weeks

Module: Earth and Space Lesson 2: Stars and Their Patterns					
5.ESS1.1, 5.ESS1.2, 5.ESS1.6, 5.ETS2.1	Students can support an argument that some stars appear brighter than others due to their relative distances.	CCC: - Patterns - Scale, Proportion, and Quantity SEP: - Analyzing and Interpreting Data	Day 1: - Page Keeley: Constellations (p.63) Day 2: - Encounter the Phenomenon: Why are some stars brighter than others? (p.65) - Video: Night Sky (digital) Day 3: - Inquiry Activity: Star Brightness (p.66-68) Day 4: - Make Your Claim (p.69) - Stars (p.70-71) - Video: Star Cycles (digital) Day 5: - Constellations (p.72-73) - Go Further: Constellations (digital) Day 6: - Inquiry Activity: The Night Sky (p.74) Day 7: - Simulation: The Night Sky (digital) Day 8: - STEM Connection: A Day in the Life of a Science Data Operator (p.76-77) Day 9: - Lesson 2 Review (p.78-80) Day 10: - Lesson Check: Stars and Their Patterns (digital)	Lesson Check: Stars and Their Patterns (digital)	2 weeks
Module: Earth and Space Review and Test					
5.ESS1.1, 5.ESS1.2, 5.ESS1.6, 5.ETS2.1	Students can demonstrate their knowledge of the Milky Way galaxy and explain why some	CCC: - Patterns - Scale, Proportion, and Quantity SEP:	Day 1: - Review Lesson 1 (p.51-62) - STEM Module Project: Model a Constellation (p.81) Day 2: - Review Lesson 2 (p.63-80)	Module Test: Earth and Space (digital)	1 week

	stars appear brighter than others.	- Analyzing and Interpreting Data - Engaging in Argument from Evidence	- STEM Module Project: Model a Constellation (p.82-83) Day 3: - STEM Module Project: Model a Constellation (p.84) Day 4: - Module Wrap-up (p. 85) Day 5: - Module Test: Earth and Space (digital)		
4th Quarter					
Standard(s)	Learning Objective(s)	CCC/SEP	McGraw Hill Alignment	Assessments	Pacing
Unit 1: Matter and Forces State Assessment Guide					
5.PS1.1, 5.PS1.2, 5.PS1.3, 5.PS2.1, 5.PS2.2, 5.PS2.3, 5.PS2.4	Students can demonstrate their knowledge of physical states, properties of mixtures, and properties of solutions. Students can demonstrate their knowledge of balanced forces, unbalanced forces and patterns of motion.	CCC: - Energy and Matter - Stability and Change SEP: - Analyzing and Interpreting Data - Developing and Using Models	Day 1: - Module: Matter Guided Practice (p.9-16) Day 2: - Module Matter Practice (p.23-28) Day 3: - Module: Force and Motion Guided Practice (p.35-43) Day 4: - Module: Fore and Motion Practice (p.52-61) Day 5: - Unit 1 Test (p. 75-89)	Guided Practice, Practice, and Unit 1 Test	1 week
Unit 2: Behaviors and Traits of Living Things State Assessment Guide					
5.LS1.1, 5.LS3.1, 5.LS3.2, 5.LS4.1	Students can demonstrate their knowledge of instinctual traits and learned behaviors, inheritance and	CCC: - Structure and Function - Cause and Effect SEP:	Day 1: - Module: Behavior and Traits Guided Practice (p.96-102) Day 2: - Module: Behavior and Traits Guided Practice (p.96-102) Day 3:	Guided Practice, Practice, and Unit 2 Test	1 week

	variation of traits, and biological change.	- Engaging in Argument from Evidence - Analyzing and Interpreting Data	- Module: Behavior and Traits Practice (p.109-113) Day 4: - Module: Behavior and Traits Practice (p.109-113) Day 5: - Unit 2 Test (?)		
Unit 3: Earth and Space Patterns State Assessment Guide					
5.ESS1.1, 5.ESS1.2, 5.ESS1.3, 5.ESS1.4, 5.ESS1.5, 5.ESS1.6	Students can demonstrate their knowledge of gravity and the movement of Earth in relationship to other objects in space. Students will demonstrate their knowledge of the Milky Way galaxy and explain why some stars appear brighter than others.	CCC: - Scale, Proportion, and Quantity - System and System Models SEP: - Developing and Using Models - Using Mathematics and Computational Thinking	Day 1: - Module: Earth's Patterns and Movement Guided Practice (p.129-137) Day 2: - Module: Earth's Patterns and Movement Practice (p.146-153) Day 3: - Module: Earth and Space Guided Practice (p.161-169) Day 4: - Module: Earth and Space Practice (p.178-186) Day 5: - Unit 3 Test (p.202-220)	Guided Practice, Practice, and Unit 3 Test	1 week
Overall Review					
All 5 th Grade Standards	Students can demonstrate their knowledge of 5 th grade science standards.	CCC: - All CCCs SEP: - All SEPs	Day 1- Day 5: Complete the 5th Grade Science TCAP Practice Test on Best For All Central	Practice Test	1 week
Family Life Curriculum					
Family Life	Students will participate in BCS approved Family Life Curriculum.	CCC: - n/a SEP: - n/a	Day 1: - Family Life Day 2: - Emotional/Social/Mental Health Day 3:	n/a	1 week

			- Human Growth and Development Day 4: “Baby Olivia” Video Day 5: - Disease		
Impact News STEM Activities					
5.ETS1.1 5.ETS2.1	Students will plan and carry out tests on one or more elements of a prototype in which variables are controlled and failure points are considered to identify which elements need to be improved. Students will apply the results of tests to redesign the prototype. Students will use appropriate tools to make measurements and answer testable questions.	CCC: - All CCCs SEP: - All SEPs	Days 1-3: - Discuss the Impact News article- “Basketball Mania” - Create using the activity, “Build a Paper Roller Coaster” from the site, https://www.sciencebuddies.org/ Days 4-6: - Discuss the Impact News article- “Wind Turbine- The Modern-Day Windmill” - Create using the activity, “Build a Rubber Band-Powered Car” from the site, https://www.sciencebuddies.org/ Days 7-9: - Discuss the Impact News article- “Robotics Opens Our Minds to Discovery” - Create using the activity, “Make Cardboard Automata” from the site, https://www.sciencebuddies.org/ Day 10: - Discuss and present creations.	Use the McGraw Hill Guided Claim, Evidence, and Reasoning process for each activity.	2 weeks
5.ETS1.1 5.ETS2.1	Students will plan and carry out tests on one or more elements of a prototype in which variables are controlled and failure points are considered to identify which	CCC: - All CCCs SEP: - All SEPs	Days 1-3: - Discuss the Impact News article- “Is Mount Spurr About to Erupt? Scientists Observe Warning Signs” - Create using the activity, “Make Your Own Seismograph” from the site, https://www.sciencebuddies.org/ Days 4-6:	Use the McGraw Hill Guided Claim, Evidence, and Reasoning process for each activity.	2 weeks

	elements need to be improved. Students will apply the results of tests to redesign the prototype. Students will use appropriate tools to make measurements and answer testable questions.		• Discuss the Impact News article- “The Science Behind Waves” • Create using the activity, “Popsicle Stick Chain Reaction” from the site, https://www.sciencebuddies.org/ Days 7-9: • Discuss the Impact News article- “Building Bridges” • Create using the activity, “Bridge Building Bonanza: Which Design Wins?” from the site, https://www.sciencebuddies.org/ Day 10: • Discuss and present creations.		
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